



Design Professional (A/E) Interface Recommendations

INCLUDING INTERFACES FOR:

**VOICE SYSTEMS
DATA SYSTEMS
VIDEO SYSTEMS
AUDIO-VISUAL SYSTEMS**

FOR ALL

SFB Enhanced K-12 Schools

PREPARED FOR

AZ School Facilities Board

Presented by

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Section 1

VOICE, DATA, AND VIDEO FACILITY INFRASTRUCTURE RECOMMENDATIONS

Summary of voice, data, video facilities infrastructure recommendations – to be provided by the A/E contractor. We have conducted a series of activities, which have provided insight into the instructional technology needs for building infrastructure. These building infrastructure elements are itemized for each type of instructional technology support space in the tables below.

Table 1-1, GENERAL CRITERIA FOR ALL TELECOMMUNICATIONS ROOMS:

| ITEM No. | ISSUE | RECOMMENDATION | Provided by Design Professional (A/E) |
|----------|---------------------------------------|--|---------------------------------------|
| 1 | Ceiling height | At least 8 ft. 6 in | Yes |
| 2 | Doorways | Should have fully-opening lockable doors which are at least 36 in. wide and 80 in. tall | Yes |
| 3 | Doors | Should open outward as allowable by fire code | Yes |
| 4 | Floors | Use tile or seal concrete floors, do not carpet | Yes |
| 5 | Dust | Seal concrete floors, masonry walls and ceiling to minimize dust | Yes |
| 6 | Positive air pressure | Maintain positive air pressure with a minimum of one air change per hour | Yes |
| 7 | Environmental control | Maintain 75 degrees F plus or minus 15 degrees - maintained 24 hours per day, 365 days per year | Yes |
| 8 | Ceilings | Do not install dropped ceilings | Yes |
| 9 | Wire cage around fire sprinkler heads | Provide wire cages on all existing fire protection sprinkler heads to prevent accidental discharge | Yes |
| 10 | Floor loading | Floors should be capable of loading to 50 lbs. per square foot | Yes |
| 11 | Lighting level | Lighting should provide an equivalent to 540 Lux measured 3 ft. above the finished floor level | Yes |



Table 1-2, SPECIFIC TELCO CARRIER SERVICES MAIN POINT OF PRESENCE (MPOP) ROOM RECOMMENDATIONS:

| ITEM No. | ISSUE | RECOMMENDATIONS | Qwest | Provided by Design Professional (A/E) |
|----------|--|--|-------|---------------------------------------|
| 1 | Size | 8' by 8' Space (no wall less than 6' length clear) | No | Yes |
| 2 | Plyboard | 1 ea, 8' (H) by 4' (L), Fire Rated Board | No | Yes |
| 3 | Electrical | 2 ea, dedicated, NEMA 5-20-R4 Receptacle with TVSS – 400 Volt max. let-through | No | Yes |
| 4 | Grounding | Per NEC, Requires Confirmation | No | Yes |
| 5 | Environmental Control | 75 +/-15 F | No | Yes |
| 6 | Heat Load | 1.0 Tons | No | Yes |
| 7 | Security | Key Locked, no through traffic path, common key per campus | No | Yes |
| 8 | Cable Ladders | 12" Wide, full perimeter, 7' high | Yes | No |
| 9 | 19" Wide Racks, 7' Tall | 2 | Yes | No |
| 10 | Wiring Closet Wall Sleeves/Tray (1 hour rated) | All fire rated walls/floors | No | Yes |
| 11 | Non-rated 4" EMT Sleeves | Non fire rated walls | No | Yes |
| 12 | Location | Within 50 ft of Telco cable entry point. | No | Yes |



Table 1-3, VOICE, DATA, AND VIDEO MAIN DISTRIBUTION FRAME (MDF) ROOM RECOMMENDATIONS:

| ITEM No | ISSUE | RECOMMENDATION | Qwest | Provided by Design Professional (A/E) |
|---------|--|--|-------|---------------------------------------|
| 1 | Size | 8' by 6' Space (no wall less than 4' length clear) | No | Yes |
| 2 | Plyboard | 1 ea, 8' (H) by 4' (L), Fire Rated Board | No | Yes |
| 3 | Electrical | 2 ea, dedicated, NEMA 5-20-R4 Receptacle with TVSS – 400 Volt max. let-through | No | Yes |
| 4 | Grounding | per NEC, Requires Conformation | No | Yes |
| 5 | Environmental Control | 75 +/- 15 F | No | Yes |
| 6 | Heat Load | 0.75 Tons | No | Yes |
| 7 | Security | Key Locked, no through traffic path, common key per campus | No | Yes |
| 8 | Cable Ladders | 12" Wide, full perimeter, 7' high | Yes | No |
| 9 | 19" Wide Racks, 7' Tall | 2 | Yes | No |
| 10 | Wiring Closet Wall Sleeves/Tray (1 hour rated) | All fire rated walls/floor | No | Yes |
| 11 | Non-rated 4" EMT Sleeves | Non fire rated walls | No | Yes |
| 12 | Location | Within 50 ft of building-to-building cable entry point. | No | Yes |



Table 1-4, VOICE, DATA, AND VIDEO INTERMEDIATE DISTRIBUTION FRAME (IDF) ROOM RECOMMENDATIONS:

| ITEM No | ISSUE | RECOMMENDATION | Qwest | Provided by Design Professional (A/E) |
|---------|--|--|-------|---------------------------------------|
| 1 | Size | 6' by 6' Space (no wall less than 4' length clear) | No | Yes |
| 2 | Plyboard | 1 ea, 8' (H) by 4' (L), Fire Rated Board | No | Yes |
| 3 | Electrical | 1 ea, dedicated, NEMA 5-20-R4 Receptacle with TVSS – 400 Volt max. let-through | No | Yes |
| 4 | Grounding | Per NEC, Requires Confirmation | No | Yes |
| 5 | Environmental Control | 75 +/-15 F | No | Yes |
| 6 | Heat Load | 0.5 Tons | No | Yes |
| 7 | Security | Key Locked, no through traffic path, common key per campus | No | Yes |
| 8 | Cable Ladders | 12" Wide, full perimeter, 7' high | Yes | No |
| 9 | 19" Wide Racks, 7' Tall | 1 | Yes | No |
| 10 | Wiring Closet Wall Sleeves/Tray (1 hour rated) | All fire rated walls/floor | No | Yes |
| 11 | Non-rated 4" EMT Sleeves | Non fire rated walls | No | Yes |
| 12 | Location | Within 90 meters of all space served for data | No | Yes |



Section 2

VOICE, DATA, AND VIDEO RACEWAY RECOMMENDATIONS

Summary of voice, data, and video raceway recommendations: We have conducted a series of activities, which have provided insight into the instructional technology needs for wiring/cabling raceways for this project. The recommended raceways are itemized by location and type of instructional technology support in the tables below. All raceways and sleeves should be provided by Electrical Contractor per ANSI/IEEE 70 (National Electrical Code) as follows:

TABLE 2-1 RACEWAY RECOMMENDATIONS

| Raceway Location | Raceway Description | Primary Use (Cable Type) | Qwest | Design Professional (A/E) |
|---|--|---|-------|---------------------------|
| Site Utilities Special Systems Duct Bank | | | | |
| | 1 ea. Communications man-hole/vault near property line | All | No | Yes |
| | 1 ea. 4" buried conduit, pull string (concrete backfill) | Voice, Copper | No | Yes |
| | 1 ea. 4" buried conduit w/ 3 ea. 1.25" Innerduct, pull strings (concrete backfill) | Data, Video, Copper | No | Yes |
| | 1 ea. 4" buried conduit w/ 3 ea. 1.25" Innerduct, pull strings (concrete backfill) | Data, Fiber | No | Yes |
| Building-to-Building | | | | |
| | 1 ea. 4" buried conduit w/ 3 ea. 1.25" Innerduct, pull strings (concrete backfill) | Voice, Special Systems (Note 1), Copper | No | Yes |
| | 1 ea. 4" buried conduit w/ 3 ea. 1.25" Innerduct, pull strings (concrete backfill) | Data/Voice, Fiber | No | Yes |
| Closet-to-Closet (within a building) raceways | | | | |
| | 12" wide by 6" high Cable Tray | Voice, Special Systems Copper and Data/Voice, Fiber | No | Yes |
| Riser Cable raceways (floor-to-floor within building) | | | | |
| | 2 ea. 4" Conduit sleeves w/ fire stop | Voice, Special Systems Copper and Data/Voice, Fiber | Yes | Yes |



| Station Cable Raceways within Classroom | | | | |
|---|--|---------------------------------|-------------------------|-----------------------------------|
| | 5 ea, concealed 1" conduit stub-ups with bushing above ceiling height w/ single-gang shallow backbox at 18" above FFH in classroom | New/Existing Gypsum Board Walls | No | Yes |
| | 5 ea, concealed 1" conduit stub-ups with bushing above ceiling height w/ single-gang shallow backbox at 18" above FFH in classroom | New Masonry Walls | No | Yes |
| | 2 ea, vertical surface decorative raceways and Tri -Channel, See Section 3, Power Coordination RECOMMENDATIONS | Existing Masonry Walls | Yes, decorative raceway | Tri-Channel only w/all electrical |
| | Modular furniture low voltage raceways | Modular Furniture Walls | Yes | No |

Note 1: Special System examples may include intercom, HVAC or security, not fire alarms
 FFH = Finished floor height

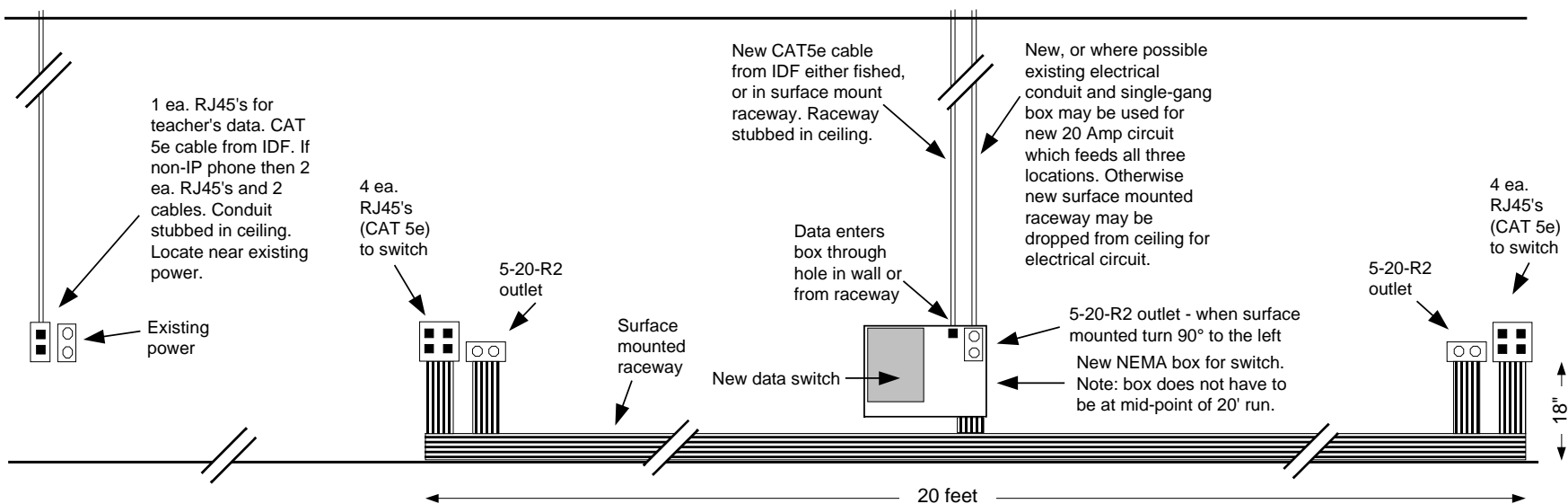
Section 3

POWER Recommendations

Summary of power recommendations: We have conducted a series of activities, which have provided insight into the instructional technology needs and power recommendations for this project. The power recommendations are itemized by location and type of instructional technology support in the tables below: All power RECOMMENDATIONS should be provided by Electrical Contractor per ANSI/IEEE 70 (National Electrical Code) as follows:

TABLE 3-1 POWER RECOMMENDATIONS

| Power Location | Power Description | Primary Use | Design Professional (A/E) |
|---------------------------------------|---|--|---------------------------|
| Main Point-of-Presence (MPOP) | | | |
| | See Table 1-2 | MPOP | Yes |
| Main Distribution Frame (MDF) | | | |
| | See Table 1-3 | MDF | Yes |
| Intermediate Distribution Frame (IDF) | | | |
| | See Table 1-4 | IDF | Yes |
| Classroom | | | |
| | A dedicated 20 Amp circuit feeding 3 ea NEMA 5-20-R2 receptacles with TVSS – 400 Volt max. let- through per | Gypsum Board Walls and New Masonry Walls | Yes |
| | Reuse existing electrical conduit and single-gang box, or drop new surface mounted raceway from ceiling, for a dedicated 20 Amp circuit feeding all three surface mounted NEMA 5-20-R2 receptacles with TVSS – 400 Volt max. let- through per Note: New Surface Mount: surface decorative raceway or Tri – Channel | Existing Masonry Walls | Yes |
| | Modular furniture electrical circuitry | Modular Furniture Walls | Yes |

Figure 2-1: Classroom Data and Electrical Raceways/Conduits**(A) Surface Mounted Classroom Data and Electrical Raceways/Conduits****(B) Concealed Classroom Data and Electrical Raceways/Conduits**